



Atty. Docket No. AUTO 211US1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appln. No. : 10/783,131
Appellants : Joseph S. Stam et al.
Examiner : Michael J. Zanelli
Art Unit : 3661
Filing Date : February 20, 2004
Confirmation No. : 7106
For : MONITORING AND AUTOMATIC EQUIPMENT CONTROL
SYSTEMS

Mail Stop Appeal Brief - Patents
Commissioner for Patents
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APPEAL BRIEF (37 CFR §41.37)

This brief is in furtherance of the Notice of Appeal filed in this case on January 3, 2007.

The fee required under §40.20(b)(2) is enclosed. If any additional fee is required, the Appellant requests that the fee be charged to Deposit Account No. 07-1070.

This brief contains these items under the following headings, and in the order set forth below (37 CFR §41.37(c)(1)):

- I. Real Party in Interest
- II. Related Appeals and Interferences
- III. Status of Claims
- IV. Status of Amendments
- V. Summary of Claimed Subject Matter
 1. Independent Claim 1
 2. Independent Claim 14
 3. Independent Claim 28

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VI. Grounds of Rejection to be Reviewed on Appeal

1. The rejection of claims 1-39 and 42-57 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Appellant regards as the invention.

2. The rejection of claims 28 and 29 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent 6,008,486, to Stam et al.

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3. The rejection of claims 14, 16-18, and 20-23 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent 6,806,485, to Jackson Jr.

4. The rejection of claims 28-31 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Publication 2003/0210334, to Sarwari.

5. The rejection of claims 1-13, 15, 19, 24-29, 31-33, 36-49, 54-59 and 68 under 35 U.S.C. §103(a) as being unpatentable over Jackson Jr. in view of U.S. Patent 6,515,271, to Shimizu and U.S. Patent 5,796,094, to Schofield et al.

VII. Arguments

1. The rejection of claims 1-39 and 42-57 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Appellant regards as the invention.

- a. Claim 1
- b. Claim 14
- c. Claim 28
- d. Claim 36
- e. Claim 42
- f. Claims 2, 4, 15, 19, 45 and 49
- g. Claims 3 and 48
- h. Claim 5
- i. Claim 6
- j. Claim 7
- k. Claims 8, 26 and 56
- l. Claims 9, 27 and 57
- m. Claim 10
- n. Claim 11
- o. Claim 12
- p. Claim 13

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- q. Claims 16, 20, 46 and 50
- r. Claims 17, 21, 47 and 51
- s. Claim 18
- t. Claims 22 and 52
- u. Claims 23 and 53
- v. Claims 24 and 54
- w. Claims 25 and 55
- x. Claim 29
- y. Claim 30
- z. Claim 31
- aa. Claim 32
- bb. Claim 33
- cc. Claim 34
- dd. Claim 35
- ee. Claim 37
- ff. Claim 38
- gg. Claim 39
- hh. Claim 43
- ii. Claim 44

2. The rejection of claims 28 and 29 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent 6,008,486, to Stam et al.

- a. Claim 28
- b. Claim 29

3. The rejection of claims 14, 16-18, and 20-23 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent 6,806,485, to Jackson Jr.

- a. Claim 14
- b. Claims 16 and 20
- c. Claims 17 and 21

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- d. Claim 18
- e. Claim 19
- f. Claim 22
- g. Claim 23

4. The rejection of claims 28-31 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Publication 2003/0210334, to Sarwari.

- a. Claim 28
- b. Claim 29
- c. Claim 30
- d. Claim 31

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5. The rejection of claims 1-13, 15, 19, 24-29, 31-33, 36-49, 54-59 and 68 under 35 U.S.C. §103(a) as being unpatentable over Jackson Jr. in view of U.S. Patent 6,515,271, to Shimizu and U.S. Patent 5,796,094, to Schofield et al.

- a. Claim 1
- b. Claim 28
- c. Claim 36
- d. Claim 40
- e. Claim 42
- f. Claims 2, 4, 15, 19, 45 and 49
- g. Claims 3 and 48
- h. Claim 5
- i. Claim 6
- j. Claim 7
- k. Claims 8, 26 and 56
- l. Claims 9, 27 and 57
- m. Claim 10
- n. Claim 11
- o. Claim 12
- p. Claim 13
- q. Claim 46
- r. Claim 47
- s. Claims 24 and 54
- t. Claims 25 and 55
- u. Claim 29
- v. Claim 31
- w. Claim 32
- x. Claim 33
- y. Claim 37

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- z. Claim 38
- aa. Claim 39
- bb. Claim 43
- cc. Claim 44
- dd. Claim 59
- ee. Claim 68

C. Conclusion

VIII. Claims Appendix

IX. Evidence Appendix

X. Related Proceedings Appendix

I. Real Party in Interest

The real party in interest in this application is Gentex Corporation, the assignment to which was recorded at Reel 015012, Frame 0866 on February 20, 2004.

II. Related Appeals and Interferences

Appellant is aware of no appeals or interferences that would directly affect or be directly affected by, or have a bearing on, the Board's decision in the pending appeal.

III. Status of Claims

This is an appeal from a final rejection of claims 1-59, 63 and 68 of the above-identified application. Claims 60-62, 64-67 and 69-73 have been deemed by the Examiner to represent allowable subject matter if re-written in independent form to include the limitations of the corresponding base claim and all intervening claims. Claims 1-73 as currently pending are attached hereto in the Claims Appendix.

IV. Status of Amendments

Aamendments to the original claims proposed in a paper dated November 30, 2006 in response to an Official Office Action dated August 30, 2006 after final rejection

have not been entered. All proposed amendments to the original claims prior to final rejection have been entered in this case and are reflected in the Claims Appendix included herewith.

V. Summary of Claimed Subject Matter

1. Independent Claim 1

Independent claim 1 defines an automatic vehicle equipment control system, comprising: (a) at least one imager comprising (a1) at least one image sensor and (a2) at least one other component selected from the group comprising: (a2i) at least one temperature sensor, (a2ii) at least one control output and (a2iii) at least one low voltage differential signal transceiver; (b) at least one enhanced transceiver; and (c) at least one interconnection between said at least one imager and said at least one enhanced transceiver, wherein (d) at least one vehicle equipment control signal is generated as a function of at least a portion of at least one image.

The discussion contained in paragraph [0036] describes various “vehicle equipment” to which claim 1 is directed (preamble and element d). Paragraphs [0047] and [0048] provide a concise list of elements that may be included in a given imager including those elements recited in claim 1 (elements a2i – a2iii). Paragraphs [0049] - [0127] along with Tables 1-15 and Figs. 7a, 8a and 9a-9f provide additional support for the subject matter of claim 1.

2. Independent Claim 14

Independent claim 14 defines an automatic vehicle equipment control system, comprising: (a) an imager comprising (a1) an image sensor and (a2) at least one other component selected from the group comprising: (a2i) at least one control output and (a2ii) at least one low voltage differential signal transceiver, wherein (b) at least one vehicle equipment control signal is generated as a function of at least a portion of at least one image.

The discussion contained in paragraph [0036] describes various “vehicle equipment” to which claim 14 is directed. Paragraphs [0047] and [0048] provide a

concise list of elements that may be included in a given imager including those elements recited in claim 14 (elements a2i and a2ii). Paragraphs [0049] - [0127] along with Tables 1-11 and Fig. 7a provide additional support for the subject matter of claim 14.

3. Independent Claim 28

Independent claim 28 defines an imager, comprising: (a) an image sensor and (b) at least one other component selected from the group comprising: (b1) at least one control output and (b2) at least one low voltage differential signal transceiver, (c) wherein said image sensor and said at least one other component are formed on a common silicon wafer, wherein (d) at least one vehicle equipment control signal is generated as a function of at least a portion of at least one image.

Paragraphs [0047] and [0048] provide a concise list of elements that may be included in a given imager including those elements recited in claim 28 (elements b1 and b2). The last sentence of paragraph [00127] supports forming these components on a common silicon wafer. The discussion contained in paragraph [0036] describes various "vehicle equipment" to which claim 28 is directed. Paragraphs [0049] - [0127] along with Tables 1-11 and Fig. 7a provide additional support for the subject matter of claim 28.

4. Independent Claim 36

Independent claim 36 defines an enhanced transceiver, comprising: (a) at least one low voltage differential signal transceiver and (b) at least one memory formed on a common silicon wafer configured to communicate with an imager, wherein (c) at least one vehicle equipment control signal is generated as a function of at least a portion of at least one image.

Paragraph [0165] provides a concise list of elements that may be included in a given enhanced transceiver including those elements recited in claim 36 (elements a and b). The discussion contained in paragraph [0036] describes various "vehicle equipment" to which claim 36 is directed (element c). Paragraphs [0110]-[0127] along

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with Tables 12-15 and Figs. 8a and 9a-9f provide additional support for the subject matter recited in claim 36.

5. Independent Claim 40

Independent claim 40 defines an imager board interconnection, comprising: (a) at least one low voltage differential signal transceiver defining at least a portion of the imager board interconnection, wherein (b) the imager board interconnection is configured to operate up to at least one megabaud without emitting unacceptable electromagnetic interference.

The discussion contained in paragraph [0256] along with Figs. 9a-9f provides the most concise support for the subject matter recited in claim 40.

6. Independent Claim 42

Independent claim 42 defines an automatic vehicle equipment control system, comprising: (a) an enhanced transceiver comprising (a1) at least one low voltage differential signal transceiver and (a2) at least one memory configured to communicate with an imager, wherein (c) at least one vehicle equipment control signal is generated as a function of at least a portion of at least one image.

Paragraph [0165] provides a concise list of elements that may be included in a given enhanced transceiver including those elements recited in claim 42 (elements a1 and a2). The discussion contained in paragraph [0036] describes various "vehicle equipment" to which claim 42 is directed (element c). Paragraphs [0110]-[0127] along with Tables 12-15 and Figs. 8a and 9a-9f provide additional support for the subject matter recited in claim 42.

7. Independent Claim 58

Independent claim 58 defines a vision system, comprising: (a) at least one imager comprising (a1) at least one image sensor and (a2) at least one low voltage differential signal transceiver formed on a common silicon wafer; (b) at least one processor; and (c) at least one enhanced transceiver interconnected between said (a)

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at least one imager and said (b) at least one processor, said at least one enhanced transceiver comprising (c1) at least one dual port memory.

Paragraph [0165] provides a concise list of elements that may be included in a given enhanced transceiver including those elements recited in claim 58 (elements c and c1). Paragraphs [0110]-[0127] along with Tables 12-15 and Figs. 8a and 9a-9f provide additional support for the subject matter recited in claim 58.

8. Claims 2, 4, 15, 19, 45 and 49

Claims 2, 4, 15, 19, 45 and 49 depend from independent claims 1, 1, 14, 14, 42 and 42, respectively, and further recite wherein said image sensor and said at least one other component are formed on a common silicon wafer.

The discussion contained in paragraphs [0047]-[0107] and with respect to Tables 1-11 and Fig. 7a provides support for this subject matter.

9. Claims 3 and 48

Claims 3 and 48 depend from independent claims 3 and 48, respectively, and further recite wherein said imager further comprises at least one additional component selected from the group comprising: at least one voltage regulator, at least one image sensor logic and control circuit and at least one analog-to-digital converter.

The discussion contained in paragraphs [0047]-[0107] and with respect to Tables 1-11 and Fig. 7a provides support for this subject matter.

10. Claim 5

Claim 5 depends from independent claim 1 and further recites wherein said image sensor and said at least one additional component are formed on a common silicon wafer.

The discussion contained in paragraphs [0047]-[0107] and with respect to Tables 1-11 and Fig. 7a provides support for this subject matter.

11. Claim 6

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Claim 6 depends from independent claim 1 and further recites said at least one enhanced transceiver comprises at least one low voltage differential signal transceiver and at least one dual port memory.

The discussion contained in paragraphs [0109]-[0127] and with respect to Tables 12-15 and Fig. 8a provides support for this subject matter.

12. Claim 7

Claim 7 depends from independent claim 1 and further recites wherein said at least one low voltage differential signal transceiver and said at least one dual port memory are formed on a common silicon wafer.

The discussion contained in paragraphs [0109]-[0127] and with respect to Tables 12-15 and Fig. 8a provides support for this subject matter.

13. Claims 8, 26 and 56

Claims 8, 26 and 56 depend from independent claims 1,14 and 42, respectively, and further recite comprising a first image sensor and a second image sensor.

The discussion contained in paragraphs [0047]-[0107] and with respect to Tables 1-11 and Fig. 7a provides support for this subject matter.

14. Claims 9, 27 and 57

Claims 9, 27 and 57 depend from independent claims 1,14 and 42, respectively, and further recite wherein said first and second image sensors communicate with a processor over a common interconnection.

The discussion contained in paragraphs [0047]-[0107] and with respect to Tables 1-11 and Figs. 7a and 9a-f, as well as, the original claim provides support for this subject matter.

15. Claim 10

Claim 10 depends from independent claim 1 and further recites wherein said interconnection is selected from the group comprising: hardwired, radio frequency,

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acoustical waves, light rays, infrared light rays, near infrared light rays, fiber optics and a vehicle bus.

The discussion contained in paragraphs [0042] and [0126]-[0141] and Figs. 9a-9f provides support for this subject matter.

16. Claim 11

Claim 11 depends from independent claim 1 and further recites wherein said interconnection has a connector that is designed to functionally engage with a mating connector on an imager board.

The discussion contained in paragraph [0046] and Figs. 6a-6b provides support for this subject matter.

17. Claim 12

Claim 12 depends from independent claim 1 and further recites wherein said interconnection has a connector that is designed to functionally engage with a mating connector on a mother board.

The discussion contained in paragraph [0046] and Figs. 6a-6b provides support for this subject matter.

18. Claim 13

Claim 13 depends from independent claim 1 and further recites wherein said interconnection has a connector that is designed to functionally engage with a mating connector on a daughter board.

The discussion contained in paragraph [0046] and Figs. 6a-6b provides support for this subject matter.

19. Claims 16, 20, 46 and 50

Claims 16, 20, 46 and 50 depend from independent claims 14, 14, 42 and 42, respectively, and further recite configured to automatically control at least one piece of equipment selected from the group comprising: an exterior light, a moisture sensor, a

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windshield wiper, a defogger, a lane departure warning, an accident avoidance system, an accident reconstruction system, an adaptive cruise control system, a security system, an occupant detection system, a cabin monitoring system, a rear vision system and a blind spot vision system.

The discussion contained in paragraph [0131] provides support for this subject matter.

20. Claims 17, 21, 47 and 51

Claims 17, 21, 47 and 51 depend from independent claims 14, 14, 42 and 42, respectively, and further recite further comprising at least one device selected from the group comprising: an electro-optic mirror element, an electro-optic mirror element drive circuit, a vehicle bus interface, a processor, an information display driver, a telecommunications transceiver, a garage door opener, a compass sensor, a compass, an information display, a compass heading display, a temperature display, an ambient light sensor, a glare light sensor, an operator interface, an indicator and a microphone.

The discussion contained in paragraph [0033] provides support for this subject matter.

21. Claim 18

Claim 18 depends from independent claim 14 and further recites wherein said imager further comprises at least one additional component selected from the group comprising: at least one temperature sensor, at least one voltage regulator, at least one image sensor logic and control circuit and at least one analog-to-digital converter.

The discussion contained in paragraphs [0047]-[0107] and with respect to Tables 1-11 and Figs. 7a and 9a-f, as well as, the original claim provides support for this subject matter.

22. Claims 22 and 52

Claims 22 and 52 depend from independent claims 14 and 42, respectively, and further recite further comprising a processor having at least one input selected from the

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group comprising: a yaw sensor input, a pitch sensor input, a steering sensor input, an ambient light sensor input, a glare light sensor input, a compass heading input, a speed input, an auto/off/on input, a pedestrian/bicyclist override input, a manual dimmer switch input.

The discussion contained in paragraph [0040] provides support for this subject matter.

23. Claims 23, 53 and 63

Claims 23, 53 and 63 depend from independent claims 14, 42 and 58, respectively, and further recite further comprising a processor having at least one output selected from the group comprising: an exterior light output, a windshield wiper output, a defogger output, an exterior light status indicator output, an information display output, an information display driver output, an electro-optic mirror element output and a pedestrian/bicyclist indicator output.

The discussion contained in paragraph [0033] provides support for this subject matter.

24. Claims 24 and 54

Claims 24 and 54 depend from independent claims 14 and 42, respectively, and further recite further comprising at least one enhanced transceiver.

The discussion contained in paragraphs [0036] and [0047]-[0127] and with respect to Tables 1-15 and Figs. 7a, 8a and 9a-9f provides support for this subject matter.

25. Claims 25 and 55

Claims 25 and 55 depend from independent claims 14 and 42, respectively, and further recite further comprising at least one interconnection between said at least one imager and said at least one enhanced transceiver.

The discussion contained in paragraph [0046] and Figs. 6a-6b provides support for this subject matter.

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26. Claim 29

Claim 29 depends from independent claim 28 and further recites further comprising at least one additional component selected from the group comprising: at least one temperature sensor, at least one dark pixel, at least one guard pixel, at least one voltage regulator, at least one image sensor logic and control circuit and at least one analog-to-digital converter.

The discussion contained in paragraphs [0036] and [0047]-[0127] and with respect to Tables 1-15 and Figs. 7a, 8a and 9a-9f provides support for this subject matter.

27. Claim 30

Claim 30 depends from independent claim 28 and further recites further comprising a spectral filter material proximate at least a portion of pixels within said image sensor such that only those associated light rays with desired wavelengths will impinge upon a given spectrally filtered pixel.

The discussion contained in paragraphs [0036] and [0047]-[0127] and with respect to Tables 1-15 and Figs. 7a, 8a and 9a-9f provides support for this subject matter.

38. Claim 31

Claim 31 depends from independent claim 28 and further recites wherein said image sensor comprises 144 columns and 176 rows of pixels.

The discussion contained in paragraphs [0036] and [0047]-[0127] and with respect to Tables 1-15 and Figs. 7a, 8a and 9a-9f provides support for this subject matter.

39. Claim 32

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Claim 32 depends from independent claim 28 and further recites wherein said image sensor further comprises 4 rows and 4 columns of guard pixels surrounding said 144 columns and 176 rows of pixels.

The discussion contained in paragraphs [0036] and [0047]-[0127] and with respect to Tables 1-15 and Figs. 7a, 8a and 9a-9f provides support for this subject matter.

40. Claim 33

Claim 33 depends from independent claim 28 and further recites wherein said image sensor further comprises 4 columns of dark pixels on outer edges of said 4 columns of guard pixels.

The discussion contained in paragraphs [0036] and [0047]-[0127] and with respect to Tables 1-15 and Figs. 7a, 8a and 9a-9f provides support for this subject matter.

41. Claim 34

Claim 34 depends from independent claim 28 and further recites further comprising 4 columns defining a temperature sensor feature.

The discussion contained in paragraphs [0036] and [0047]-[0127] and with respect to Tables 1-15 and Figs. 7a, 8a and 9a-9f provides support for this subject matter.

42. Claim 35

Claim 35 depends from independent claim 28 and further recites wherein said temperature sensor feature is configured such that the associated columns are read out of the imager utilizing a format similar to pixel data.

The discussion contained in paragraphs [0036] and [0047]-[0127] and with respect to Tables 1-15 and Figs. 7a, 8a and 9a-9f provides support for this subject matter.

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43. Claim 37

Claim 37 depends from independent claim 36 and further recites further comprising at least one additional device selected from the group comprising: an incoming data logic block, a processor interface logic block, a loop back mode and a bypass mode.

The discussion contained in paragraphs [0036] and [0047]-[0127] and with respect to Tables 1-15 and Figs. 7a, 8a and 9a-9f provides support for this subject matter.

44. Claim 38

Claim 38 depends from independent claim 36 and further recites further comprising at least one dual port memory, wherein said at least one dual port memory comprises greater than 32,000 bytes.

The discussion contained in paragraphs [0036] and [0047]-[0127] and with respect to Tables 1-15 and Figs. 7a, 8a and 9a-9f provides support for this subject matter.

45. Claim 39

Claim 39 depends from independent claim 36 and further recites further comprising at least one dual port memory, wherein said at least one dual port memory comprises 8 bit architecture.

The discussion contained in paragraphs [0036] and [0047]-[0127] and with respect to Tables 1-15 and Figs. 7a, 8a and 9a-9f provides support for this subject matter.

46. Claim 41

Claim 41 depends from independent claim 40 and further recites further configured to interconnect more than one image sensor to at least one processor.

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The discussion contained in paragraphs [0036] and [0047]-[0127] and with respect to Tables 1-15 and Figs. 7a, 8a and 9a-9f provides support for this subject matter.

47. Claim 43

Claim 43 depends from independent claim 42 and further recites further comprising at least one dual port memory, wherein said at least one low voltage differential signal transceiver and said at least one dual port memory are formed on a common silicon wafer.

The discussion contained in paragraphs [0036] and [0047]-[0127] and with respect to Tables 1-15 and Figs. 7a, 8a and 9a-9f provides support for this subject matter.

48. Claim 44

Claim 44 depends from independent claim 42 and further recites further comprising an imager comprising an image sensor and at least one other component selected from the group comprising: at least one temperature sensor, at least one control output and at least one low voltage differential signal transceiver.

The discussion contained in paragraphs [0036] and [0047]-[0127] and with respect to Tables 1-15 and Figs. 7a, 8a and 9a-9f provides support for this subject matter.

49. Claim 59

Claim 59 depends from independent claim 58 and further recites said imager further comprising at least one output.

The discussion contained in paragraphs [0036] and [0047]-[0127] and with respect to Tables 1-15 and Figs. 7a, 8a and 9a-9f provides support for this subject matter.

50. Claim 60

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Claim 60 depends from independent claim 58 and further recites wherein said at least one output is configured to connect to a supplemental light source.

The discussion contained in paragraphs [0036] and [0047]-[0127] and with respect to Tables 1-15 and Figs. 7a, 8a and 9a-9f provides support for this subject matter.

51. Claim 61

Claim 61 depends from independent claim 58 and further recites wherein said at least one output is configured to connect to an imager heater.

The discussion contained in paragraphs [0036] and [0047]-[0127] and with respect to Tables 1-15 and Figs. 7a, 8a and 9a-9f provides support for this subject matter.

52. Claim 62

Claim 62 depends from independent claim 58 and further recites wherein said at least one output is configured to automatically operate said imager heater as a function of a temperature sensor.

The discussion contained in paragraphs [0036] and [0047]-[0127] and with respect to Tables 1-15 and Figs. 7a, 8a and 9a-9f provides support for this subject matter.

53. Claim 64

wherein said at least one enhanced transceiver comprises at least one memory having at least two read addresses and is configured such that at least a portion of at least two images can be accessed by said at least one processor.

The discussion contained in paragraphs [0036] and [0047]-[0127] and with respect to Tables 1-15 and Figs. 7a, 8a and 9a-9f provides support for this subject matter.

54. Claim 65

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wherein said at least one imager is configured to acquire at least two images in response to one command instruction.

The discussion contained in paragraphs [0036] and [0047]-[0127] and with respect to Tables 1-15 and Figs. 7a, 8a and 9a-9f provides support for this subject matter.

55. Claim 66

wherein said at least one enhanced transceiver comprises at least one memory having at least two read addresses and is configured such that at least a portion of at least two images can be accessed by said at least one processor.

The discussion contained in paragraphs [0036] and [0047]-[0127] and with respect to Tables 1-15 and Figs. 7a, 8a and 9a-9f provides support for this subject matter.

56. Claim 67

Claim 67 depends from independent claim 58 and further recites configured such that said at least one enhanced transceiver functions to pass command instructions from said at least one processor to said at least one imager.

The discussion contained in paragraphs [0036] and [0047]-[0127] and with respect to Tables 1-15 and Figs. 7a, 8a and 9a-9f provides support for this subject matter.

57. Claim 68

Claim 68 depends from independent claim 58 and further recites configured such that said at least one enhanced transceiver functions to pass image data from said at least one imager to said at least one processor.

The discussion contained in paragraphs [0036] and [0047]-[0127] and with respect to Tables 1-15 and Figs. 7a, 8a and 9a-9f provides support for this subject matter.

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58. Claim 69

Claim 69 depends from independent claim 58 and further recites wherein said imager is configured to transmit a first image having a first integration period and a second image having a second integration period in response to one command instruction.

The discussion contained in paragraphs [0036] and [0047]-[0127] and with respect to Tables 1-15 and Figs. 7a, 8a and 9a-9f provides support for this subject matter.

59. Claim 70

Claim 70 depends from independent claim 58 and further recites wherein said first image comprises a first spectrally filtered portion and said second image comprises a second spectrally filtered portion.

The discussion contained in paragraphs [0036] and [0047]-[0127] and with respect to Tables 1-15 and Figs. 7a, 8a and 9a-9f provides support for this subject matter.

60. Claim 71

Claim 71 depends from independent claim 58 and further recites further comprising a first spectrally filtered portion and a second spectrally filtered portion, wherein said processor is configured to read a first pixel from a row of said first spectrally filtered portion followed by a corresponding second pixel from a corresponding row of said second spectrally filtered portion.

The discussion contained in paragraphs [0036] and [0047]-[0127] and with respect to Tables 1-15 and Figs. 7a, 8a and 9a-9f provides support for this subject matter.

61. Claim 72

Claim 72 depends from independent claim 58 and further recites further comprising first and second spectrally filtered portions, a first image and a second

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image, wherein said processor is further configured to read a complete row of pixels from said first and second spectrally filtered portions sequentially with one pixel from the first image followed by one pixel from the second image.

The discussion contained in paragraphs [0036] and [0047]-[0127] and with respect to Tables 1-15 and Figs. 7a, 8a and 9a-9f provides support for this subject matter.

62. Claim 73

Claim 73 depends from independent claim 58 and further recites further comprising a first spectrally filtered portion and a second spectrally filtered portion, wherein said processor is further configured to read a first pixel from a row of said first image not within said first spectrally filtered portion followed by a corresponding pixel from a second row of said second image not within said second spectrally filtered portion.

The discussion contained in paragraphs [0036] and [0047]-[0127] and with respect to Tables 1-15 and Figs. 7a, 8a and 9a-9f provides support for this subject matter.

VI. Grounds of Rejection to be Reviewed on Appeal

1. The rejection of claims 1-39 and 42-57 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Appellant regards as the invention.

2. The rejection of claims 28 and 29 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent 6,008,486, to Stam et al.

3. The rejection of claims 14, 16-18, and 20-23 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent 6,806,485, to Jackson Jr.

4. The rejection of claims 28-31 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Publication 2003/0210334, to Sarwari.

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5. The rejection of claims 1-13, 15, 19, 24-29, 31-33, 36-49, 54-59 and 68 under 35 U.S.C. §103(a) as being unpatentable over Jackson Jr. in view of U.S. Patent 6,515,271, to Shimizu and U.S. Patent 5,796,094, to Schofield et al.

VII. Arguments

1. The rejection of claims 1-39 and 42-57 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Appellant regards as the invention.

a. Claim 1

The Examiner stated, “the claims lack sufficient structure for producing the vehicle equipment control signal for each of the possible components listed in the group (claims 1, 14 and 28) whereas claims 36 and 42 do not recite any structures capable of producing the vehicle equipment control signal.”

As an initial matter, a rejection under 35 U.S.C. §112, second paragraph, can only be maintained when a particular claim limitation, or claim in total, is indefinite in light of the corresponding specification. Here, the Examiner has seemingly disregarded the description of structure that generates a vehicle equipment control signal as a function of at least a portion of at least one image as provided throughout the original specification and as recited in each of the independent claims. Additionally, the Examiner has not even acknowledged the Appellant’s remarks contain in the previous request for reconsideration.

The Appellant respectfully points out that each of the independent claims (claims 1, 14, 28, 36 and 42) incorporates “comprising” in an effort to not exclude additional structure beyond that which is explicitly recited in any given independent or dependent

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claim. Each independent claim recites an imager which, as painstakingly described throughout the original specification, constitutes structure described to generate at least one vehicle equipment control signal as a function of at least a portion of at least one image. As described in detail throughout the present disclosure, there is a host of other structure; such as, at least one enhanced transceiver, at least one memory and at least one low voltage signal transceiver that are described to generate at least one vehicle equipment control signal as a function of at least a portion of at least one image. Various combinations of the structure disclosed throughout the specification is explicitly recited in each independent claims. As a matter of fact, the claim set is structured such that when more than one of the individual structural elements is recited, any one or more than one may generate at least one vehicle equipment control signal as a function of at least a portion of at least one image.

In the previous Office Action the Examiner stated that for purposes of further examination on the merits, the wherein clause "is being interpreted as an intended use of the image information". The Appellant subsequently submitted that it is a complete mischaracterization of the claim language to interpret the wherein clause "as an intended use of the image information" as stated by the Examiner. In the current Office Action the Examiner has maintained his earlier position. In actuality the limitation recites additional structure in the form of at least one vehicle equipment control signal.

The Appellant wishes to respectfully point to the provisions of MPEP 2173.06 regarding prior art rejection of claim rejected as indefinite:

When the terms of a claim are considered to be indefinite, at least two

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approaches to the examination of an indefinite claim relative to the prior art are possible

First, where the degree of uncertainty is not great, and where the claim is subject to more than one interpretation and at least one interpretation would render the claim unpatentable over the prior art, an appropriate course of action would be for the examiner to enter two rejections: (A) a rejection based on indefiniteness under, §112, second paragraph; and (B) a rejection over the prior art based on the interpretation of the claims which renders the prior art applicable. See, e.g., *Ex parte Ionescu*, 222 USPQ 537 (Bd. App. 1984). When making a rejection over prior art in these circumstances, it is important for the examiner to point out how the claim is being interpreted. Second, where there is a great deal of confusion and uncertainty as to the proper interpretation of the limitations of a claim, it would not be proper to reject such a claim on the basis of prior art. As stated in *In re Steele*, 305 F.2d 859, 134 USPQ 292 (CCPA 1962), a rejection under §103 should not be based on considerable speculation about the meaning of terms employed in a claim or assumptions that must be made as to the scope of the claims.

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b. Claim 14

The Appellant respectfully submits that “the degree of uncertainty is not great” and without question does not fall to the level of involving “a great deal of confusion and uncertainty”. The Appellant respectfully submits, as described above, that claim 14 is definite and specifically point out and distinctly claim the subject matter which the Appellant regards as the invention and has explicitly described throughout the disclosure.

c. Claim 28

The Appellant respectfully submits that “the degree of uncertainty is not great” and without question does not fall to the level of involving “a great deal of confusion and uncertainty”. The Appellant respectfully submits, as described above, that claim 28 is definite and specifically point out and distinctly claim the subject matter which the Appellant regards as the invention and has explicitly described throughout the disclosure.

d. Claim 36

The Appellant respectfully submits that “the degree of uncertainty is not great” and without question does not fall to the level of involving “a great deal of confusion and uncertainty”. The Appellant respectfully submits, as described above, that claim 36 is definite and specifically point out and distinctly claim the subject matter which the Appellant regards as the invention and has explicitly described throughout the disclosure.

e. Claim 42

The Appellant respectfully submits that “the degree of uncertainty is not great” and without question does not fall to the level of involving “a great deal of confusion and uncertainty”. The Appellant respectfully submits, as described above, that claim 42 is definite and specifically point out and distinctly claim the subject matter which the

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Appellant regards as the invention and has explicitly described throughout the disclosure.

f. Claims 2, 4, 15, 19, 45 and 49

For at least the reasons expressed above with regard to claim 1 and in that claims 2, 4, 15, 19, 45 and 49 depend from claims 1, 1, 14, 14, 42 and 42, respectively, the Appellant submits that claims 2, 4, 15, 19, 45 and 49 are in condition for allowance.

g. Claims 3 and 48

For at least the reasons expressed above with regard to claim 1 and in that claims 3 and 48 depend from claims 1 and 42, respectively, the Appellant submits that claims 3 and 48 are in condition for allowance.

h. Claim 5

For at least the reasons expressed above with regard to claim 1 and in that claim 5 depends from claim 1, the Appellant submits that claim 5 is in condition for allowance.

i. Claim 6

For at least the reasons expressed above with regard to claim 1 and in that claim 6 depends from claim 1, the Appellant submits that claim 6 is in condition for allowance.

j. Claim 7

For at least the reasons expressed above with regard to claim 1 and in that claim 7 depends from claim 1, the Appellant submits that claim 7 is in condition for allowance.

k. Claims 8, 26 and 56

For at least the reasons expressed above with regard to claim 1 and in that claims 8, 26 and 56 depend from claims 1, 14 and 42, respectively, the Appellant submits that claims 8, 26 and 56 are in condition for allowance.

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l. Claims 9, 27 and 57

For at least the reasons expressed above with regard to claim 1 and in that claims 9, 27 and 57 depend from claims 1, 14 and 42, respectively, the Appellant submits that claims 9, 27 and 57 are in condition for allowance.

m. Claim 10

For at least the reasons expressed above with regard to claim 1 and in that claim 10 depends from claim 1, the Appellant submits that claim 10 is in condition for allowance.

n. Claim 11

For at least the reasons expressed above with regard to claim 1 and in that claim 11 depends from claim 1, the Appellant submits that claim 11 is in condition for allowance.

o. Claim 12

For at least the reasons expressed above with regard to claim 1 and in that claim 12 depends from claim 1, the Appellant submits that claim 12 is in condition for allowance.

p. Claim 13

For at least the reasons expressed above with regard to claim 1 and in that claim 13 depends from claim 1, the Appellant submits that claim 13 is in condition for allowance.

q. Claims 16, 20, 46 and 50

For at least the reasons expressed above with regard to claim 1 and in that claims 16, 20, 46 and 50 depend from claims 14, 14, 42 and 42, respectively, the Appellant submits that claims 16, 20, 46 and 50 are in condition for allowance.

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r. Claims 17, 21, 47 and 51

For at least the reasons expressed above with regard to claim 1 and in that claims 17, 21, 47 and 51 depend from claims 14, 14, 42 and 42, respectively, the Appellant submits that claims 17, 21, 47 and 51 are in condition for allowance.

s. Claim 18

For at least the reasons expressed above with regard to claims 1 and 14 and in that claim 18 depends from claim 14, the Appellant submits that claim 18 is in condition for allowance.

t. Claims 22 and 52

For at least the reasons expressed above with regard to claim 1 and in that claims 22 and 52 depend from claims 14 and 42, respectively, the Appellant submits that claims 22 and 52 are in condition for allowance.

u. Claims 23 and 53

For at least the reasons expressed above with regard to claim 1 and in that claims 23 and 53 depend from claims 14 and 42, respectively, the Appellant submits that claims 23 and 53 are in condition for allowance.

v. Claims 24 and 54

For at least the reasons expressed above with regard to claim 1 and in that claims 24 and 54 depend from claims 14 and 42, respectively, the Appellant submits that claims 24 and 54 are in condition for allowance.

w. Claims 25 and 55

For at least the reasons expressed above with regard to claim 1 and in that claims 25 and 55 depend from claims 14 and 42, respectively, the Appellant submits that claims 25 and 55 are in condition for allowance.

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x. Claim 29

For at least the reasons expressed above with regard to claims 1 and 28 and in that claim 29 depends from claim 28, the Appellant submits that claim 29 is in condition for allowance.

y. Claim 30

For at least the reasons expressed above with regard to claims 1 and 28 and in that claim 30 depends from claim 28, the Appellant submits that claim 30 is in condition for allowance.

z. Claim 31

For at least the reasons expressed above with regard to claims 1 and 28 and in that claim 31 depends from claim 28, the Appellant submits that claim 31 is in condition for allowance.

aa. Claim 32

For at least the reasons expressed above with regard to claims 1 and 28 and in that claim 32 depends from claim 28, the Appellant submits that claim 32 is in condition for allowance.

bb. Claim 33

For at least the reasons expressed above with regard to claims 1 and 28 and in that claim 33 depends from claim 28, the Appellant submits that claim 33 is in condition for allowance.

cc. Claim 34

For at least the reasons expressed above with regard to claims 1 and 28 and in that claim 34 depends from claim 28, the Appellant submits that claim 34 is in condition for allowance.

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dd. Claim 35

For at least the reasons expressed above with regard to claims 1 and 28 and in that claim 35 depends from claim 28, the Appellant submits that claim 35 is in condition for allowance.

ee. Claim 37

For at least the reasons expressed above with regard to claims 1 and 36 and in that claim 37 depends from claim 36, the Appellant submits that claim 37 is in condition for allowance.

ff. Claim 38

For at least the reasons expressed above with regard to claims 1 and 36 and in that claim 38 depends from claim 36, the Appellant submits that claim 38 is in condition for allowance.

gg. Claim 39

For at least the reasons expressed above with regard to claims 1 and 36 and in that claim 39 depends from claim 36, the Appellant submits that claim 39 is in condition for allowance.

hh. Claim 43

For at least the reasons expressed above with regard to claims 1 and 42 and in that claim 43 depends from claim 42, the Appellant submits that claim 43 is in condition for allowance.

ii. Claim 44

For at least the reasons expressed above with regard to claims 1 and 42 and in that claim 44 depends from claim 42, the Appellant submits that claim 44 is in condition for allowance.

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2. The rejection of claims 28 and 29 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent 6,008,486, to Stam et al.

The Reference(s)

1. U.S. Patent No. 6,008,486 issued to Stam et al.

Stam et al., which is commonly assigned with the present application, discloses a wide dynamic range optical sensor. A system and method is described for increasing effective integration time of an optical sensor including holding a first signal within each pixel cell, proportional to light integrated by the pixel cell over the previous frame period, generating a second signal within each pixel cell proportional to light integrated by the pixel cell over the current frame period, and summing the first signal and the second signal from each pixel, thereby producing an output signal representing the light integrated by each pixel over two frame periods. If saturation of pixel cells is possible, a further method of extending dynamic range is described including generating and storing a first signal in each pixel cell indicative of light integrated by the pixel cell over a long period, generating a second signal in each pixel cell indicative of light integrated by the pixel cell over a short period, and determining an output for each pixel as the first signal whenever the first signal is less than a threshold value, otherwise determining the output as the second signal. Also included are double correlated sampling for noise reduction, interlacing for increased integration time, and individual pixel reset for additional gains in dynamic range.

a. Claim 28

The Appellant submits that the MPEP and related laws, rules and case law is quite clear as to anticipation of a claim. MPEP §2131 states:

In order for a claim to be anticipated under 35 U.S.C. §102, however, each and every element as set forth in the claim must be found in a single prior art reference. MPEP § 2131 (emphasis added).

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Stam et al. does not teach each and every element as set forth in claim 28. The image sensor of Stam et al. does not have either a control output or a low voltage differential signal transceiver. Therefore, the Appellant respectfully submits that Stam et al. does not teach or suggest an automatic vehicle equipment control system, comprising: an imager comprising an imager, comprising: an image sensor and at least one other component selected from the group comprising: at least one control output and at least one low voltage differential signal transceiver, wherein said image sensor and said at least one other component are formed on a common silicon wafer, wherein at least one vehicle equipment control signal is generated as a function of at least a portion of at least one image as recited in claim 28. Therefore, the Appellant respectfully submits that claim 28 is in condition for allowance over Stam et al.

b. Claim 29

For at least the reasons expressed above with regard to claim 28 and in that claim 29 depends from claim 28, the Appellant respectfully submits that claim 29 is in condition for allowance over Stam et al.

3. The rejection of claims 14, 16-18, and 20-23 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent 6,806,485, to Jackson Jr.

The Reference(s)

1. U.S. Patent No. 6,806,485 issued to Jackson Jr.

Jackson Jr. discloses an ambient light detector for off-the-glass rain sensor. An optical moisture detector for determining a value corresponding to ambient light conditions and comparing that value to a predetermined value. The detector includes an optical moisture sensor and a processor. The optical moisture sensor can be a photo array, a CCD or a CMOS. The processor can be a microprocessor. The processor can emit a control signal to engage or disengage a light generating device based on the result of the comparison of the value to the predetermined value.

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However, this reference does not even mention an image sensor or vision system described and claimed in the present application.

a. Claim 14

The Appellant submits that the MPEP and related laws, rules and case law is quite clear as to anticipation of a claim. MPEP §2131 states:

In order for a claim to be anticipated under 35 U.S.C. §102, however, each and every element as set forth in the claim must be found in a single prior art reference. MPEP § 2131 (emphasis added).

Jackson Jr. does not teach each and every element as set forth in claim 14. The image sensor of Jackson Jr. does not have either a control output or a low voltage differential signal transceiver. Therefore, the Appellant respectfully submits that Jackson Jr. does not teach or suggest an automatic vehicle equipment control system, comprising: an imager comprising an image sensor and at least one other component selected from the group comprising: at least one control output and at least one low voltage differential signal transceiver, wherein at least one vehicle equipment control signal is generated as a function of at least a portion of at least one image as recited in claim 14. In that claims 16-18, 20, 21 and 23 depend from claim 14, the Appellant respectfully submits that claims 14, 16-18, 20, 21 and 23 are in condition for allowance over Jackson Jr.

b. Claims 16 and 20

For at least the reasons expressed above with regard to claim 14 and in that claims 16 and 20 depend from claim 14, the Appellant respectfully submits that claims 16 and 20 are in condition for allowance over Jackson Jr.

c. Claims 17 and 21

For at least the reasons expressed above with regard to claim 14 and in that claims 17 and 21 depend from claim 14, the Appellant respectfully submits that claims 17 and 21 are in condition for allowance over Jackson Jr.

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d. Claim 18

For at least the reasons expressed above with regard to claim 14 and in that claim 18 depends from claim 14, the Appellant respectfully submits that claim 18 is in condition for allowance over Jackson Jr.

e. Claim 19

For at least the reasons expressed above with regard to claim 14 and in that claim 19 depends from claim 14, the Appellant respectfully submits that claim 19 is in condition for allowance over Jackson Jr.

f. Claim 22

For at least the reasons expressed above with regard to claim 14 and in that claim 20 depends from claim 14, the Appellant respectfully submits that claim 20 is in condition for allowance over Jackson Jr.

g. Claim 23

For at least the reasons expressed above with regard to claim 14 and in that claim 23 depends from claim 14, the Appellant respectfully submits that claim 23 is in condition for allowance over Jackson Jr.

4. The rejection of claims 28-31 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Publication 2003/0210334, to Sarwari.

The Reference(s)

1. U.S. Patent No. Application No. 2003/0210334 to Sarwari

Sarwari discloses an integrated CMOS imager and microcontroller. A method and apparatus providing a CMOS imager with an integrated controller on a common integrated circuit substrate. Also integrated on the common substrate are, a serializer circuit including a dynamic arbiter under the control of the microcontroller core and a set of extended special function registers through which data is passed to allow the

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microcontroller to control the CMOS imager and the serializer circuit. However, this reference does not even mention an image sensor, vision system or automatic vehicle equipment control as described and claimed in the present application.

a. Claim 28

The Appellant submits that the MPEP and related laws, rules and case law is quite clear as to anticipation of a claim. MPEP §2131 states:

In order for a claim to be anticipated under 35 U.S.C. §102, however, each and every element as set forth in the claim must be found in a single prior art reference. MPEP § 2131 (emphasis added).

Sarwari does not teach each and every element as set forth in claim 28. The image sensor of Sarwari does not have either a control output or a low voltage differential signal transceiver. Therefore, the Appellant respectfully submits that Sarwari does not teach or suggest an automatic vehicle equipment control system, comprising: an imager comprising an imager, comprising: an image sensor and at least one other component selected from the group comprising: at least one control output and at least one low voltage differential signal transceiver, wherein said image sensor and said at least one other component are formed on a common silicon wafer, wherein at least one vehicle equipment control signal is generated as a function of at least a portion of at least one image as recited in claim 28. In that claims 29-31 depends from claim 28, the Appellant respectfully submits that claims 28, 29-31 are in condition for allowance over Sarwari.

b. Claim 29

For at least the reasons expressed above with regard to claim 28 and in that claim 29 depends from claim 28, the Appellant respectfully submits that claim 29 is in condition for allowance over Sarwari.

c. Claim 30

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For at least the reasons expressed above with regard to claim 28 and in that claim 30 depends from claim 28, the Appellant respectfully submits that claim 30 is in condition for allowance over Sarwari.

d. Claim 31

For at least the reasons expressed above with regard to claim 28 and in that claim 31 depends from claim 28, the Appellant respectfully submits that claim 31 is in condition for allowance over Sarwari.

5. The rejection of claims 1-13, 15, 19, 24-29, 31-33, 36-49, 54-59 and 68 under 35 U.S.C. §103(a) as being unpatentable over Jackson Jr. in view of U.S. Patent 6,515,271, to Shimizu and U.S. Patent 5,796,094, to Schofield et al.

The Reference(s)

1. U.S. Patent No. 6,806,485 issued to Jackson Jr.

Jackson Jr. discloses an ambient light detector for off-the-glass rain sensor. An optical moisture detector for determining a value corresponding to ambient light conditions and comparing that value to a predetermined value. The detector includes an optical moisture sensor and a processor. The optical moisture sensor can be a photo array, a CCD or a CMOS. The processor can be a microprocessor. The processor can emit a control signal to engage or disengage a light generating device based on the result of the comparison of the value to the predetermined value. However, this reference does not even mention an image sensor or vision system described and claimed in the present application.

2. U.S. Patent No. 6,515,271 issued to Shimizu

Shimizu discloses a CMOS image sensor unit with serial transmitting function. A CMOS image sensor unit with serial data transmitting function is disclosed. A CMOS sensor unit as a two-dimensional sensor constituted by a plurality of CMOS elements arranged in a regular array in the row and column directions, a clock unit for obtaining a

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clock signal at a predetermined oscillation frequency, a PLL circuit unit receiving the clock signal from the clock unit and a parallel-to-serial converter unit for converting parallel data read out from the CMOS sensor to serial data in synchronism to the clock signal from the PLL circuit are mounted on a single image sensor unit.

This reference does not even mention an image sensor, vision system or automatic vehicle equipment control as described and claimed in the present application.

3. U.S. Patent No. 5,796,094 issued to Schofield et al.

The Schofield et al. patent discloses a vehicle headlight control using imaging sensor. However, this reference does not even mention an image sensor or vision system described and claimed in the present application.

a. Claim 1

The requirements for making a *prima facie* case of obviousness are described in MPEP §2143 as follows:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

MPEP §2143.01 provides further guidance as to what is necessary in showing that there was motivation known in the prior art to modify a reference teaching.

Specifically, MPEP §2143.01 states:

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

A statement that modifications of the prior art to meet the claimed invention

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would have been 'well within the ordinary skill of the art' at the time the claimed invention was made,' because the references relied upon teach all aspects of the claimed invention were individually known in the prior art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993).

The Appellant notes that the Examiner has not provided any rationale as to why one skilled in the art would have considered replacing the conventional automatic vehicle exterior light control systems (such as that disclosed in the art relied upon by the Examiner) with an image sensor configured as disclosed and claimed in the present application, let alone any rationale as to why one skilled in the art would have found such a modification to have been desirable. The Appellant's recognition that use of an image sensor as disclosed and claimed was obtained through years of research and development. The same is true with regard to modification of the devices of prior art in that utilization of apparatus as disclosed and claimed in the present application was not contemplated.

For at least the reasons expressed above, the Appellant respectfully submits that Jackson Jr., Shimizu or Schofield et al., taken individually or in combination, do not teach or suggest an automatic vehicle equipment control system, comprising: at least one imager comprising at least one image sensor and at least one other component selected from the group comprising: at least one temperature sensor, at least one control output and at least one low voltage differential signal transceiver; at least one enhanced transceiver; and at least one interconnection between said at least one imager and said at least one enhanced transceiver, wherein at least one vehicle equipment control signal is generated as a function of at least a portion of at least one image as recited in claim 1. Therefore, the Appellant respectfully submits that claim 1 is in condition for allowance over the art of record.

b. Claim 28

For at least the reasons expressed above with regard to claim 1, the Appellant further submits that Jackson Jr., Shimizu or Schofield et al., taken individually or in

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combination, do not teach or suggest an automatic vehicle equipment control system, comprising: an imager comprising an imager, comprising: an image sensor and at least one other component selected from the group comprising: at least one control output and at least one low voltage differential signal transceiver, wherein said image sensor and said at least one other component are formed on a common silicon wafer, wherein at least one vehicle equipment control signal is generated as a function of at least a portion of at least one image as recited in claim 28. Therefore, the Appellant respectfully submits that claim 1 is in condition for allowance over the art of record.

c. Claim 36

For at least the reasons expressed above with regard to claim 1, the Appellant further submits that Jackson Jr., Shimizu or Schofield et al., taken individually or in combination, do not teach or suggest an automatic vehicle equipment control system, comprising: an enhanced transceiver, comprising: at least one low voltage differential signal transceiver and at least one memory formed on a common silicon wafer configured to communicate with an imager, wherein at least one vehicle equipment control signal is generated as a function of at least a portion of at least one image as recited in claim 36. Therefore, the Appellant respectfully submits that claim 36 is in condition for allowance over the art of record.

d. Claim 40

For at least the reasons expressed above with regard to claim 1, the Appellant further submits that Jackson Jr., Shimizu or Schofield et al., taken individually or in combination, do not teach or suggest an imager board interconnection, comprising: at least one low voltage differential signal transceiver defining at least a portion of the imager board interconnection, wherein the imager board interconnection is configured to operate up to at least one megabaud without emitting unacceptable electromagnetic

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interference as recited in claim 40. Therefore, the Appellant respectfully submits that claim 40 is in condition for allowance over the art of record.

e. Claim 42

For at least the reasons expressed above with regard to claim 1, the Appellant further submits that Jackson Jr., Shimizu or Schofield et al., taken individually or in combination, do not teach or suggest an automatic vehicle equipment control system, comprising: an enhanced transceiver comprising at least one low voltage differential signal transceiver and at least one memory configured to communicate with an imager, wherein at least one vehicle equipment control signal is generated as a function of at least a portion of at least one image as recited in claim 42. Therefore, the Appellant respectfully submits that claim 1 is in condition for allowance over the art of record.

f. Claims 2, 4, 15, 19, 45 and 49

For at least the reasons expressed above with regard to claim 1 and in that claims 2, 4, 15, 19, 45 and 49 depend from claims 1, 1, 14, 14, 42 and 42, respectively, the Appellant respectfully submits that claims 2, 4, 15, 19, 45 and 49 are in condition for allowance over Jackson Jr., Shimizu or Schofield et al., taken individually or in combination.

g. Claims 3 and 48

For at least the reasons expressed above with regard to claim 1 and in that claims 3 and 48 depend from claims 1 and 42, respectively, the Appellant respectfully submits that claims 3 and 48 are in condition for allowance over Jackson Jr., Shimizu or Schofield et al., taken individually or in combination.

h. Claim 5

For at least the reasons expressed above with regard to claim 1 and in that claim 5 depends from claim 1, the Appellant respectfully submits that claim 5 is in condition

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for allowance over Jackson Jr., Shimizu or Schofield et al., taken individually or in combination.

i. Claim 6

For at least the reasons expressed above with regard to claim 1 and in that claim 6 depends from claim 1, the Appellant respectfully submits that claim 6 is in condition for allowance over Jackson Jr., Shimizu or Schofield et al., taken individually or in combination.

j. Claim 7

For at least the reasons expressed above with regard to claim 1 and in that claim 7 depends from claim 1, the Appellant respectfully submits that claim 7 is in condition for allowance over Jackson Jr., Shimizu or Schofield et al., taken individually or in combination.

k. Claims 8, 26 and 56

For at least the reasons expressed above with regard to claim 1 and in that claims 8, 26 and 56 depend from claims 1, 14 and 42, respectively, the Appellant respectfully submits that claims 8, 26 and 56 are in condition for allowance over Jackson Jr., Shimizu or Schofield et al., taken individually or in combination.

l. Claims 9, 27 and 57

For at least the reasons expressed above with regard to claim 1 and in that claims 9, 27 and 57 depend from claims 1, 14 and 42, respectively, the Appellant respectfully submits that claims 9, 27 and 57 are in condition for allowance over Jackson Jr., Shimizu or Schofield et al., taken individually or in combination.

m. Claim 10

For at least the reasons expressed above with regard to claim 1 and in that claim 10 depends from claim 1, the Appellant respectfully submits that claim 10 is in condition

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for allowance over Jackson Jr., Shimizu or Schofield et al., taken individually or in combination.

n. Claim 11

For at least the reasons expressed above with regard to claim 1 and in that claim 11 depends from claim 1, the Appellant respectfully submits that claim 11 is in condition for allowance over Jackson Jr., Shimizu or Schofield et al., taken individually or in combination.

o. Claim 12

For at least the reasons expressed above with regard to claim 1 and in that claim 12 depends from claim 1, the Appellant respectfully submits that claim 12 is in condition for allowance over Jackson Jr., Shimizu or Schofield et al., taken individually or in combination.

p. Claim 13

For at least the reasons expressed above with regard to claim 1 and in that claim 13 depends from claim 1, the Appellant respectfully submits that claim 13 is in condition for allowance over Jackson Jr., Shimizu or Schofield et al., taken individually or in combination.

q. Claim 46

For at least the reasons expressed above with regard to claim 1 and in that claim 46 depends from claim 42, the Appellant respectfully submits that claim 46 is in condition for allowance over Jackson Jr., Shimizu or Schofield et al., taken individually or in combination.

r. Claim 47

For at least the reasons expressed above with regard to claim 1 and in that claim 47 depends from claim 42, the Appellant respectfully submits that claim 47 is in

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condition for allowance over Jackson Jr., Shimizu or Schofield et al., taken individually or in combination.

s. Claims 24 and 54

For at least the reasons expressed above with regard to claim 1 and in that claims 24 and 54 depend from claims 14 and 42, respectively, the Appellant respectfully submits that claims 24 and 54 are in condition for allowance over Jackson Jr., Shimizu or Schofield et al., taken individually or in combination.

t. Claims 25 and 55

For at least the reasons expressed above with regard to claim 1 and in that claims 25 and 55 depend from claims 14 and 42, respectively, the Appellant respectfully submits that claims 25 and 55 are in condition for allowance over Jackson Jr., Shimizu or Schofield et al., taken individually or in combination.

u. Claim 29

For at least the reasons expressed above with regard to claim 1 and in that claim 29 depends from claim 28, the Appellant respectfully submits that claim 29 is in condition for allowance over Jackson Jr., Shimizu or Schofield et al., taken individually or in combination.

v. Claim 31

For at least the reasons expressed above with regard to claim 1 and in that claim 31 depends from claim 28, the Appellant respectfully submits that claim 31 is in condition for allowance over Jackson Jr., Shimizu or Schofield et al., taken individually or in combination.

w. Claim 32

For at least the reasons expressed above with regard to claim 1 and in that claim 32 depends from claim 28, the Appellant respectfully submits that claim 32 is in

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condition for allowance over Jackson Jr., Shimizu or Schofield et al., taken individually or in combination.

x. Claim 33

For at least the reasons expressed above with regard to claim 1 and in that claim 33 depends from claim 28, the Appellant respectfully submits that claim 33 is in condition for allowance over Jackson Jr., Shimizu or Schofield et al., taken individually or in combination.

y. Claim 37

For at least the reasons expressed above with regard to claim 1 and in that claim 37 depends from claim 36, the Appellant respectfully submits that claim 37 is in condition for allowance over Jackson Jr., Shimizu or Schofield et al., taken individually or in combination.

z. Claim 38

For at least the reasons expressed above with regard to claim 1 and in that claim 38 depends from claim 36, the Appellant respectfully submits that claim 38 is in condition for allowance over Jackson Jr., Shimizu or Schofield et al., taken individually or in combination.

aa. Claim 39

For at least the reasons expressed above with regard to claim 1 and in that claim 39 depends from claim 36, the Appellant respectfully submits that claim 39 is in condition for allowance over Jackson Jr., Shimizu or Schofield et al., taken individually or in combination.

bb. Claim 43

For at least the reasons expressed above with regard to claim 1 and in that claim 43 depends from claim 42, the Appellant respectfully submits that claim 43 is in

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condition for allowance over Jackson Jr., Shimizu or Schofield et al., taken individually or in combination.

cc. Claim 44

For at least the reasons expressed above with regard to claim 1 and in that claim 44 depends from claim 42, the Appellant respectfully submits that claim 44 is in condition for allowance over Jackson Jr., Shimizu or Schofield et al., taken individually or in combination.

dd. Claim 59

For at least the reasons expressed above with regard to claim 1 and in that claim 59 depends from claim 58, the Appellant respectfully submits that claim 59 is in condition for allowance over Jackson Jr., Shimizu or Schofield et al., taken individually or in combination.

ee. Claim 68

For at least the reasons expressed above with regard to claim 1 and in that claim 68 depends from claim 58, the Appellant respectfully submits that claim 68 is in condition for allowance over Jackson Jr., Shimizu or Schofield et al., taken individually or in combination.

C. Conclusion

For at least the reasons set forth above, and as is apparent from examining the invention defined by claims 1-73 when properly considering the cited references, these claims define patentable subject matter. Accordingly, reversal of the rejections of these claims under 35 U.S.C. §§ 102, 103 and 112 is appropriate and is respectfully solicited.

Respectfully submitted,
JOSEPH S. STAM ET AL.
By: Gentex Corporation

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OCTOBER 11, 2007
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VIII. Claims Appendix (37 CFR §41.37(c)(1)(viii))

1. An automatic vehicle equipment control system, comprising:
at least one imager comprising at least one image sensor and at least one other component selected from the group comprising: at least one temperature sensor, at least one control output and at least one low voltage differential signal transceiver;
at least one enhanced transceiver; and
at least one interconnection between said at least one imager and said at least one enhanced transceiver, wherein at least one vehicle equipment control signal is generated as a function of at least a portion of at least one image.
2. An automatic vehicle equipment control system as in claim 1 wherein said image sensor and said at least one other component are formed on a common silicon wafer.
3. An automatic vehicle equipment control system as in claim 1 wherein said imager further comprises at least one additional component selected from the group comprising: at least one voltage regulator, at least one image sensor logic and control circuit and at least one analog-to-digital converter.
4. An automatic vehicle equipment control system as in claim 3 wherein said image sensor and said at least one other component are formed on a common silicon wafer.
5. An automatic vehicle equipment control system as in claim 3 wherein said image sensor and said at least one additional component are formed on a common silicon wafer.
6. An automatic vehicle equipment control system as in claim 1 said at least one enhanced transceiver comprises at least one low voltage differential signal transceiver and at least one dual port memory.

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7. An automatic vehicle equipment control system as in claim 6 wherein said at least one low voltage differential signal transceiver and said at least one dual port memory are formed on a common silicon wafer.
8. An automatic vehicle equipment control system as in claim 1 comprising a first image sensor and a second image sensor.
9. An automatic vehicle equipment control system as in claim 8 wherein said first and second image sensors communicate with a processor over a common interconnection.
10. An automatic vehicle equipment control system as in claim 1 wherein said interconnection is selected from the group comprising: hardwired, radio frequency, acoustical waves, light rays, infrared light rays, near infrared light rays, fiber optics and a vehicle bus.
11. An automatic vehicle equipment control system as in claim 1 wherein said interconnection has a connector that is designed to functionally engage with a mating connector on an imager board.
12. An automatic vehicle equipment control system as in claim 1 wherein said interconnection has a connector that is designed to functionally engage with a mating connector on a mother board.
13. An automatic vehicle equipment control system as in claim 1 wherein said interconnection has a connector that is designed to functionally engage with a mating connector on a daughter board.
14. An automatic vehicle equipment control system, comprising:
an imager comprising an image sensor and at least one other component

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selected from the group comprising: at least one control output and at least one low voltage differential signal transceiver, wherein at least one vehicle equipment control signal is generated as a function of at least a portion of at least one image.

15. An automatic vehicle equipment control system as in claim 14 wherein said image sensor and said at least one other component are formed on a common silicon wafer.

16. An automatic vehicle equipment control system as in claim 14 configured to automatically control at least one piece of equipment selected from the group comprising: an exterior light, a moisture sensor, a windshield wiper, a defogger, a lane departure warning, an accident avoidance system, an accident reconstruction system, an adaptive cruise control system, a security system, an occupant detection system, a cabin monitoring system, a rear vision system and a blind spot vision system.

17. An automatic vehicle equipment control system as in claim 14 further comprising at least one device selected from the group comprising: an electro-optic mirror element, an electro-optic mirror element drive circuit, a vehicle bus interface, a processor, an information display driver, a telecommunications transceiver, a garage door opener, a compass sensor, a compass, an information display, a compass heading display, a temperature display, an ambient light sensor, a glare light sensor, an operator interface, an indicator and a microphone.

18. An automatic vehicle equipment control system as in claim 14 wherein said imager further comprises at least one additional component selected from the group comprising: at least one temperature sensor, at least one voltage regulator, at least one image sensor logic and control circuit and at least one analog-to-digital converter.

19. An automatic vehicle equipment control system as in claim 18 wherein said image sensor and said at least one other component are formed on a common silicon

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wafer.

20. An automatic vehicle equipment control system as in claim 18 configured to automatically control at least one piece of equipment selected from the group comprising: an exterior light, a moisture sensor, a windshield wiper, a defogger, a lane departure warning, an accident avoidance system, an accident reconstruction system, an adaptive cruise control system, a security system, an occupant detection system, a cabin monitoring system, a rear vision system and a blind spot vision system.

21. An automatic vehicle equipment control system as in claim 18 further comprising at least one device selected from the group comprising: an electro-optic mirror element, an electro-optic mirror element drive circuit, a vehicle bus interface, a processor, an information display driver, a telecommunications transceiver, a garage door opener, a compass sensor, a compass, an information display, a compass heading display, a temperature display, an ambient light sensor, a glare light sensor, an operator interface, an indicator and a microphone.

22. An automatic vehicle equipment control system as in claim 14 further comprising a processor having at least one input selected from the group comprising: a yaw sensor input, a pitch sensor input, a steering sensor input, an ambient light sensor input, a glare light sensor input, a compass heading input, a speed input, an auto/off/on input, a pedestrian/bicyclist override input, a manual dimmer switch input.

23. An automatic vehicle equipment control system as in claim 14 further comprising a processor having at least one output selected from the group comprising: an exterior light output, a windshield wiper output, a defogger output, an exterior light status indicator output, an information display output, an information display driver output, an electro-optic mirror element output and a pedestrian/bicyclist indicator output.

24. An automatic vehicle equipment control system as in claim 14 further comprising

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at least one enhanced transceiver.

25. An automatic vehicle equipment control system as in claim 14 further comprising at least one interconnection between said at least one imager and said at least one enhanced transceiver.

26. An automatic vehicle equipment control system as in claim 14 comprising a first image sensor and a second image sensor.

27. An automatic vehicle equipment control system as in claim 26 wherein said first and second image sensors communicate with a processor over a common interconnection.

28. An imager, comprising:

an image sensor and at least one other component selected from the group comprising: at least one control output and at least one low voltage differential signal transceiver, wherein said image sensor and said at least one other component are formed on a common silicon wafer, wherein at least one vehicle equipment control signal is generated as a function of at least a portion of at least one image.

29. An imager as in claim 28 further comprising at least one additional component selected from the group comprising: at least one temperature sensor, at least one dark pixel, at least one guard pixel, at least one voltage regulator, at least one image sensor logic and control circuit and at least one analog-to-digital converter.

30. An imager as in claim 28 further comprising a spectral filter material proximate at least a portion of pixels within said image sensor such that only those associated light rays with desired wavelengths will impinge upon a given spectrally filtered pixel.

31. An imager as in claim 28 wherein said image sensor comprises 144 columns and

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176 rows of pixels.

32. An imager as in claim 31 wherein said image sensor further comprises 4 rows and 4 columns of guard pixels surrounding said 144 columns and 176 rows of pixels.

33. An imager as in claim 32 wherein said image sensor further comprises 4 columns of dark pixels on outer edges of said 4 columns of guard pixels.

34. An imager as in claim 33 further comprising 4 columns defining a temperature sensor feature.

35. An imager as in claim 34 wherein said temperature sensor feature is configured such that the associated columns are read out of the imager utilizing a format similar to pixel data.

36. An enhanced transceiver, comprising:
at least one low voltage differential signal transceiver and at least one memory formed on a common silicon wafer configured to communicate with an imager, wherein at least one vehicle equipment control signal is generated as a function of at least a portion of at least one image.

37. An enhanced transceiver as in claim 36 further comprising at least one additional device selected from the group comprising: an incoming data logic block, a processor interface logic block, a loop back mode and a bypass mode.

38. An enhanced transceiver as in claim 36 further comprising at least one dual port memory, wherein said at least one dual port memory comprises greater than 32,000 bytes.

39. An enhanced transceiver as in claim 36 further comprising at least one dual port

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memory, wherein said at least one dual port memory comprises 8 bit architecture.

40. An imager board interconnection, comprising:

at least one low voltage differential signal transceiver defining at least a portion of the imager board interconnection, wherein the imager board interconnection is configured to operate up to at least one megabaud without emitting unacceptable electromagnetic interference.

41. An imager board interconnection as in claim 40 further configured to interconnect more than one image sensor to at least one processor.

42. An automatic vehicle equipment control system, comprising:

an enhanced transceiver comprising at least one low voltage differential signal transceiver and at least one memory configured to communicate with an imager, wherein at least one vehicle equipment control signal is generated as a function of at least a portion of at least one image.

43. An automatic vehicle equipment control system as in claim 42 further comprising at least one dual port memory, wherein said at least one low voltage differential signal transceiver and said at least one dual port memory are formed on a common silicon wafer.

44. An automatic vehicle equipment control system as in claim 42 further comprising an imager comprising an image sensor and at least one other component selected from the group comprising: at least one temperature sensor, at least one control output and at least one low voltage differential signal transceiver.

45. An automatic vehicle equipment control system as in claim 44 wherein said image sensor and said at least one other component are formed on a common silicon wafer.

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46. An automatic vehicle equipment control system as in claim 44 configured to automatically control at least one piece of equipment selected from the group comprising: an exterior light, a moisture sensor, a windshield wiper, a defogger, a lane departure warning, an accident avoidance system, an accident reconstruction system, an adaptive cruise control system, a security system, an occupant detection system, a cabin monitoring system, a rear vision system and a blind spot vision system.

47. An automatic vehicle equipment control system as in claim 44 further comprising at least one device selected from the group comprising: an electro-optic mirror element, an electro-optic mirror element drive circuit, a vehicle bus interface, a processor, an information display driver, a telecommunications transceiver, a garage door opener, a compass sensor, a compass, an information display, a compass heading display, a temperature display, an ambient light sensor, a glare light sensor, an operator interface, an indicator and a microphone.

48. An automatic vehicle equipment control system as in claim 44 wherein said imager further comprises at least one additional component selected from the group comprising: at least one voltage regulator, at least one image sensor logic and control circuit and at least one analog-to-digital converter.

49. An automatic vehicle equipment control system as in claim 48 wherein said image sensor and said at least one other component are formed on a common silicon wafer.

50. An automatic vehicle equipment control system as in claim 48 configured to automatically control at least one piece of equipment selected from the group comprising: an exterior light, a moisture sensor, a windshield wiper, a defogger, a lane departure warning, an accident avoidance system, an accident reconstruction system, an adaptive cruise control system, a security system, an occupant detection system, a

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cabin monitoring system, a rear vision system and a blind spot vision system.

51. An automatic vehicle equipment control system as in claim 48 further comprising at least one device selected from the group comprising: an electro-optic mirror element, an electro-optic mirror element drive circuit, a vehicle bus interface, a processor, an information display driver, a telecommunications transceiver, a garage door opener, a compass sensor, a compass, an information display, a compass heading display, a temperature display, an ambient light sensor, a glare light sensor, an operator interface, an indicator and a microphone.

52. An automatic vehicle equipment control system as in claim 44 further comprising a processor having at least one input selected from the group comprising: a yaw sensor input, a pitch sensor input, a steering sensor input, an ambient light sensor input, a glare light sensor input, a compass heading input, a speed input, an auto/off/on input, a pedestrian/bicyclist override input, a manual dimmer switch input.

53. An automatic vehicle equipment control system as in claim 44 further comprising a processor having at least one output selected from the group comprising: an exterior light output, a windshield wiper output, a defogger output, an exterior light status indicator output, an information display output, an information display driver output, an electro-optic mirror element output and a pedestrian/bicyclist indicator output.

54. An automatic vehicle equipment control system as in claim 44 further comprising at least one enhanced transceiver.

55. An automatic vehicle equipment control system as in claim 44 further comprising at least one interconnection between said at least one imager and said at least one enhanced transceiver.

56. An automatic vehicle equipment control system as in claim 44 comprising a first

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image sensor and a second image sensor.

57. An automatic vehicle equipment control system as in claim 56 wherein said first and second image sensors communicate with a processor over a common interconnection.

58. A vision system, comprising:
at least one imager comprising at least one image sensor and at least one low voltage differential signal transceiver formed on a common silicon wafer;
at least one processor; and
at least one enhanced transceiver interconnected between said at least one imager and said at least one processor, said at least one enhanced transceiver comprising at least one dual port memory.

59. A vision system as in claim 58, said imager further comprising at least one output.

60. A vision system as in claim 59 wherein said at least one output is configured to connect to a supplemental light source.

61. A vision system as in claim 59 wherein said at least one output is configured to connect to an imager heater.

62. A vision system as in claim 61 wherein said at least one output is configured to automatically operate said imager heater as a function of a temperature sensor.

63. A vision system as in claim 58, said at least one processor having at least one output selected from the group comprising: an exterior light output, a windshield wiper output, a defogger output, an exterior light status indicator output, an information display output, an information display driver output, an electro-optic mirror element

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output and a pedestrian/bicyclist indicator output.

64. A vision system as in claim 58 wherein said at least one enhanced transceiver comprises at least one memory having at least two read addresses and is configured such that at least a portion of at least two images can be accessed by said at least one processor.

65. A vision system as in claim 58 wherein said at least one imager is configured to acquire at least two images in response to one command instruction.

66. A vision system as in claim 61 wherein said at least one enhanced transceiver comprises at least one memory having at least two read addresses and is configured such that at least a portion of at least two images can be accessed by said at least one processor.

67. A vision system as in claim 58 configured such that said at least one enhanced transceiver functions to pass command instructions from said at least one processor to said at least one imager.

68. A vision system as in claim 58 configured such that said at least one enhanced transceiver functions to pass image data from said at least one imager to said at least one processor.

69. A vision system as in claim 58 wherein said imager is configured to transmit a first image having a first integration period and a second image having a second integration period in response to one command instruction.

70. A vision system as in claim 65 wherein said first image comprises a first spectrally filtered portion and said second image comprises a second spectrally filtered portion.

71. A vision system as in claim 66 further comprising a first spectrally filtered portion and a second spectrally filtered portion, wherein said processor is configured to read a first pixel from a row of said first spectrally filtered portion followed by a corresponding second pixel from a corresponding row of said second spectrally filtered portion.

72. A vision system as in claim 68 further comprising first and second spectrally filtered portions, a first image and a second image, wherein said processor is further configured to read a complete row of pixels from said first and second spectrally filtered portions sequentially with one pixel from the first image followed by one pixel from the second image.

73. A vision system as in claim 69 further comprising a first spectrally filtered portion and a second spectrally filtered portion, wherein said processor is further configured to read a first pixel from a row of said first image not within said first spectrally filtered portion followed by a corresponding pixel from a second row of said second image not within said second spectrally filtered portion.

IX. Evidence Appendix (35 USC §41.37(c)(1)(ix))

There was no evidence submitted during this application under 37 CFR §§1.130, 1.131 or 1.132 or any evidence entered by the Examiner and replied upon by Appellant in the appeal.

X. Related Proceedings Appendix (35 USC §41.37(c)(1)(x))

There have been no related appeals or interferences pending during prosecution of this application.